

**REMARKS**

Claims 12, 4-8, 10-23, 25-26 and 27-35 are pending.

Claims 27-34 have been rejected.

Claims 1-2, 4-8, 10-23, 25-26 and 35 are allowable.

The Examiner has rejected claim 27 under 35 U.S.C. 112 because the phrase "and wherein R<sup>2</sup> is not 2,2,2-trifluoroethyl or cynomethyl groups;" has been introduced. The Applicant has deleted said term and has specified that R<sup>2</sup> is specifically methyl, ethyl, propyl, butyl, benzyl, phenyl or succinimidyl. Support for this amendment can be found in paragraphs 10, 12 and 17 of the Applicant's disclosure. In addition, for the purpose of clarifying the claims, the Applicant has amended claim 29 to be dependent on claim 27 and has introduced that the reaction is carried out in solvents.

The Examiner has rejected claims 27 to 34 for the reasons of record. It is respectfully submitted that the rejections have been traversed.

In regards to the 35 U.S.C. 102(b) rejections of claims 27 to 34, the Applicant disagrees with the Examiner's position. It is submitted that the use of the term C<sub>1</sub>-C<sub>9</sub> alkyl group as specified in the Applicant's original claims would not include within its scope a 2-2-2-trifluoroethyl group. A C<sub>2</sub> alkyl group would be understood to refer to the "-CH<sub>2</sub>CH<sub>3</sub>" group.

As evidence of this general understanding, the Applicant hereby encloses copies of two different definitions for the term "alkyl" from "Hawley's Condensed Chemical Dictionary" and "McGraw-Hill Dictionary of Scientific and Technical Terms". As discussed by both of these references, alkyl is described generically as C<sub>n</sub>H<sub>2n+1</sub>. Thus the terms C<sub>1</sub> to C<sub>9</sub> alkyl group would be understood to mean the alkyl groups as defined by the formula C<sub>n</sub>H<sub>2n+1</sub> where n is the number of carbons (ie: methyl, ethyl, propyl, butyl, pentyl, etc.) It would not be understood to include an alkyl halide group such as the 2-2-2-trifluoroethyl group of either Mcdaniel et al. or Banitt et al. and which forms the basis for the present rejection. Even though the Applicant is of the belief that the original claim language would preclude the trifluoroethyl substituents, the Applicant has amended claim 27 (and thus claims 28-34 by way of dependency) to specify that R<sup>2</sup> is methyl, ethyl, propyl, butyl, benzyl, phenyl or

succinimidyl groups. It is submitted that these limitations unambiguously exclude embodiments wherein R<sup>2</sup> is a 2-2-2-trifluoroethyl group that is taught in either Mcdaniel et al. or Banitt et al.

It is also respectfully submitted that the rejections under 35 U.S.C. 103 are now moot as neither of Mcdaniel et al. or Banitt et al. disclose the use of the presently claimed methyl, ethyl, propyl, butyl, benzyl, phenyl or succinimidyl esters. Though not a rejection of record, it is also respectfully submitted that the substitution of the substituents of the currently submitted claim 27 for the trifluoroethyl substituent disclosed in the prior art would not be obvious as there was no expectation of success of the process as now claimed. In this regard, the Applicant reiterates the argument set out in Applicant's response dated February 28, 2006.

The Applicants respectfully submit that this application is now in condition for allowance, which action is earnestly solicited. If the Examiner has any questions, he is respectfully requested to contact Applicant's Agent, Francis Ng-Cheng-Hin at (905) 771-6414 at his convenience.

Respectfully submitted,



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Agent for Applicant

FN/md  
Enclosures

# **McGraw-Hill DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS**

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## **Fourth Edition**

**Sybil P. Parker**

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On the title pages: Aerial photograph of the Sinal Peninsula made by Gemini spacecraft. (NASA)

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In addition, material has been drawn from the following references: R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *U.S. Air Force Glossary of Standardized Terms*, AF Manual 11-1, vol. 1, 1972; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, 1st ed., National Aeronautics and Space Administration, 1965; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology*, White Sands Missile Range, New Mexico, National Bureau of Standards, AD 467-424; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, 1st ed., Department of Defense, 1967; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; *ADP Glossary*, Department of the Navy, NAVSO P-3097.

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**alkali lake** [HYD] A lake with large quantities of dissolved sodium and potassium carbonates as well as sodium chloride. { 'al-kə,li 'lāk }

**alkali lead** [METAL] An alloy of lead hardened with small quantities of alkali metals; used as bearing metals. { 'al-kə,li 'led }

**alkali lignin** [MATER] A type of lignin produced by treating the black liquor from the soda process with acid; used as an extender in the negative plates of storage batteries, in asphalt, and in paperboard products. { 'al-kə,li 'lignən }

**alkali-lime index** [PETR] The percentage by weight of silica in a sequence of igneous rocks on a variation diagram where the weight percentages of CaO and of K<sub>2</sub>O and Na<sub>2</sub>O are equal. { 'al-kə,li 'līm, 'indeks }

**alkali metal** [CHEM] Any of the elements of group I in the periodic table: lithium, sodium, potassium, rubidium, cesium, and francium. { 'al-kə,li, 'med-əl }

**alkalimeter** [ANALY CHEM] 1. An apparatus for measuring the quantity of alkali in a solid or liquid. 2. An apparatus for measuring the quantity of carbon dioxide formed in a reaction. { 'al-kə,li 'mēd-ər }

**alkalimetry** [ANALY CHEM] Quantitative measurement of the concentration of bases or the quantity of one free base in a solution; techniques include titration and other analytical methods. { 'al-kə,li 'mē-tre }

**alkaline** [CHEM] 1. Having properties of an alkali. 2. Having a pH greater than 7. { 'al-kə,lin }

**alkaline cell** [ELEC] A primary cell that uses an alkaline electrolyte, usually potassium hydroxide, and delivers about 1.5 volts at much higher current rates than the common carbon-zinc cell. Also known as alkaline-manganese cell. { 'al-kə,lin, 'sel }

**alkaline cleaner** [MET] An aqueous solution of an alkali used for metal cleaning. { 'al-kə,lin 'klēn-ər }

**alkaline earth** [INORG CHEM] An oxide of an element of group IIa in the periodic table, such as barium, calcium, and strontium. Also known as alkaline-earth oxide. { 'al-kə,lin 'ərth }

**alkaline-earth metals** [CHEM] The heaviest members of group IIa in the periodic table; usually calcium, strontium, magnesium, and barium. { 'al-kə,lin 'ərth 'med-əlz }

**alkaline-earth oxide** See alkaline earth. { 'al-kə,lin 'ərth 'āksid }

**alkaline flooding** [PETRO ENG] A type of enhanced oil recovery in which alkaline chemicals are injected during a water flooding or are combined with polymer flooding; the chemicals react with acids in the crude oil to form surfactants. { 'al-kə,lin 'fləd-īŋ }

**alkaline-manganese cell** See alkaline cell. { 'al-kə,lin 'māŋ-gə,nēs, 'sel }

**alkaline phosphatase** [BIOCHEM] A phosphatase active in alkaline media. { 'al-kə,lin 'fās-fə,tās }

**alkaline soil** [GEOL] Soil containing soluble salts of magnesium, sodium, or the like, and having a pH value between 7.3 and 8.5. { 'al-kə,lin 'sōil }

**alkaline storage battery** [ELEC] A storage battery in which the electrolyte consists of an alkaline solution, usually potassium hydroxide. { 'al-kə,lin 'stōrij, 'bād-ərē }

**alkaline tide** [PHYSIO] The temporary decrease in acidity of urine and body fluids after eating, attributed by some to the withdrawal of acid from the body due to gastric digestion. { 'al-kə,lin 'tid }

**alkaline wash** [CHEM ENG] The removal of impurities from kerosine, used for illuminating purposes, by caustic soda solution. { 'al-kə,lin, 'wāsh }

**alkalinity** [CHEM] The property of having excess hydroxide ions in solution. { 'al-kə,lin-ə-dē }

**alkali reactivity** [MATER] Susceptibility of a concrete aggregate to alkali-aggregate reaction. { 'al-kə,li, 'rē-ak'tiv-əd-ē }

**alkali-resisting paint** [MATER] A paint, such as one made with a synthetic resin, that does not undergo saponification when used in such places as bathrooms or on such materials as new concretes. { 'al-kə,li 'rə,zist-īŋ 'pānt }

**alkali soil** [GEOL] A soil, with salts injurious to plant life, having a pH value of 8.5 or higher. { 'al-kə,li, 'sōil }

**alkaloid** [ORG CHEM] One of a group of nitrogenous bases of plant origin, such as nicotine, cocaine, and morphine. { 'al-kə,lōid }

**alkalometry** [ANALY CHEM] The measurement of the quantity of alkaloids present in a substance. { 'al-kə,lām-ə-trē }

**alkalosis** [MED] A condition of high blood alkalinity caused either by high intake of sodium bicarbonate or by loss of hydrochloric acid or blood carbon dioxide. { 'al-kə,lōs-əs }

**alkamine** [ORG CHEM] A compound that has both the alcohol and amino groups. Also known as amino alcohol. { 'al-kə,mēn }

**alkane** [ORG CHEM] A member of a series of saturated aliphatic hydrocarbons having the empirical formula C<sub>n</sub>H<sub>2n+2</sub>. { 'al,kān }

**alkanet** [MATER] A chemical indicator made from the root of *Alkanna tinctoria*. { 'al-kə,net }

**alkannin** [ORG CHEM] C<sub>16</sub>H<sub>16</sub>O<sub>5</sub> A red powder, the coloring ingredient of alkanet; soluble in alcohol, benzene, ether, and oils; used as a coloring agent for fats and oils, wines, and wax. { 'al-kə,nən }

**alkanolamine** [ORG CHEM] One of a group of viscous, water-soluble amino alcohols of the aliphatic series. { 'al-kə,nāl-ə,mēn }

**alkaptonuria** [MED] A hereditary metabolic disorder transmitted as an autosomal recessive in man in which large amounts of homogentisic acid (alkapton) are excreted in the urine due to a deficiency of homogentisic acid oxidase. Also spelled alcaptonuria. { 'al,kap-tə'nūr-ē-ə }

**Alkar process** [CHEM ENG] Catalytic alkylation of aromatic hydrocarbons with olefins to produce alkylaromatics; for example, production of ethylbenzene from benzene and ethylene. { 'al,kə, 'prās-əs }

**alkarsine** See cacodyl oxide. { 'al-kə, 'sēn }

**alkene** [ORG CHEM] One of a class of unsaturated aliphatic hydrocarbons containing one or more carbon-to-carbon double bonds. { 'al,kēn }

**alkoxide** See alcoholate. { 'al,kāk,sid }

**alkoxy** [ORG CHEM] An alkyl radical attached to a molecule by oxygen, such as the ethoxy radical. { 'al,kāk-sē }

**alkyd paint** [MATER] A paint using an alkyd resin as the vehicle for the pigment. { 'al-kəd, 'pānt }

**alkyd resin** [ORG CHEM] A class of adhesive resins made from unsaturated acids and glycerol. { 'al-kəd 'rez-ən }

**alkyl** [ORG CHEM] A monovalent radical, C<sub>n</sub>H<sub>2n+1</sub>, which may be considered to be formed by loss of a hydrogen atom from an alkane; usually designated by R. { 'al-kəl }

**alkylamine** [ORG CHEM] A compound consisting of an alkyl group attached to the nitrogen of an amine; an example is ethylamine, C<sub>2</sub>H<sub>5</sub>NH<sub>2</sub>. { 'al-kəl-ə,mēn }

**alkylaryl sulfonates** [ORG CHEM] General name for alkylbenzene sulfonates. { 'al-kəl-ə,rəl 'səl-fə,nāts }

**alkylate** [ORG CHEM] A product of the alkylation process in petroleum refining. { 'al-kə,lāt }

**alkylate bottom** [CHEM ENG] Residue from fractionation of total alkylate which boils at a higher temperature than aviation gasolines. { 'al-kə,lāt 'bād-əm }

**alkylated gasoline** [MATER] A cleaning-burning gasoline with a high-octane rating; prepared by adding neohexane or some other alkylate. { 'al-kə,lād-əd, 'gas-ə'lēn }

**alkylation** [CHEM ENG] A refinery process for chemically combining isoparaffin with olefin hydrocarbons. [ORG CHEM] A chemical process in which an alkyl radical is introduced into an organic compound by substitution or addition. { 'al-kə'lā-shən }

**alkylbenzene sulfonates** [ORG CHEM] Widely used non-biodegradable detergents, commonly dodecylbenzene or tridecylbenzene sulfonates. { 'al-kəl,ben,zēn 'səl-fə,nāts }

**alkylene** [ORG CHEM] An organic radical formed from an unsaturated aliphatic hydrocarbon; for example, the ethylene radical C<sub>2</sub>H<sub>3</sub>—. { 'al-kə,lēn }

**alkyl halide** [ORG CHEM] A compound consisting of an alkyl group and a halogen; an example is ethylbromide. { 'al-kəl 'hāl,īd }

**alkyne** [ORG CHEM] One of a group of organic compounds containing a carbon-to-carbon triple bond. { 'al,kīn }

**allachesthesia** [MED] A tactile sensation experienced remote from the point of stimulation but on the same side of the body. { 'al-ək-əs'thēzh-ə }

**allactite** [MINERAL] Mn<sub>7</sub>(AsO<sub>4</sub>)<sub>2</sub>(OH)<sub>6</sub> Brownish-red mineral consisting of a basic manganese arsenate. { ə'lak,tīt }

**allalinite** [PETR] An altered gabbro with original texture and euhedral pseudomorphs. { ə'lal-ə,nīt }

# *Hawley's Condensed Chemical Dictionary*

*ELEVENTH EDITION*

*Revised by*

N. Irving Sax

and

Richard J. Lewis, Sr.



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**alkaline earth.** An oxide of an alkaline earth metal (lime).

**alkaline-earth metals.** Calcium, barium, strontium and radium (Group II A of Periodic Table). In general they are white and differ by shades of color or casts, malleable, extrudable, and machinable, and may be made into rods, wire or plate; less reactive than sodium and potassium and have higher melting and boiling points. See also specific entry.

**alkaloid.** A basic nitrogenous organic compound of vegetable origin. Usually derived from the nitrogen ring compounds pyridine, quinoline, isoquinoline, pyrrole, designated by the ending -ine. Though some are liquids, they are usually colorless, crystalline solids, having a bitter taste which combine with acids without elimination of water. They are soluble in alcohol, insoluble or sparingly soluble in water. Examples are atropine, morphine, nicotine, quinine, codeine, caffeine, cocaine, and strychnine.

**alkane.** See paraffin (1).

**alkanesulfonic acid, mixed.**  $\text{RSO}_3\text{H}$  (R is methyl, ethyl, propyl, mixed). Trade designation for a mixture of methane-, ethane-, and propane sulfonic acids. A strong nonoxidizing, nonsulfonating liquid acid which is thermally stable at moderately high temperatures.

Properties: Light amber liquid with sour odor, very corrosive, miscible with water and saturated fatty acids, mp below  $-40^\circ\text{C}$ , bp  $120\text{--}140^\circ\text{C}$  (1 mm), d 1.38 ( $20^\circ\text{C}$ ); pH (1% solution) 1.15.

Use: Catalyst; intermediate, reaction medium.

**"Alkanol."**<sup>28</sup> TM for a series of fatty alcohol-ethylene oxide condensation products used as nonionic surface-active agents in detergents, dispersing and emulsifying agents in paper, leather and textiles. These include grades OA, OE, OJ, OP, and HC. 189-S is a saturated hydrocarbon sodium sulfonate. B and BG are sodium alkyl-naphthalene sulfonates. Sulfur is tetrahydro-naphthalene sodium sulfonate

**alkanolamine.** (alkylolamine). A compound such as ethanolamine  $\text{HOCH}_2\text{CH}_2\text{NH}_2$ , or triethanolamine,  $(\text{HOCH}_2\text{CH}_2)_3\text{N}$ , in which nitrogen is attached directly to the carbon of an alkyl alcohol. See specific compound.

**alkene.** See olefin.

**"Alkor."**<sup>41</sup> TM for a synthetic, furan-type resin cement which is acid- and alkali-proof and used as a mortar cement where temperatures do not exceed  $380^\circ\text{F}$ .

**alkoxyaluminum hydrides.**  $(\text{H}_n\text{AlOR}_{3n})$ . A group of reducing agents especially useful in converting epoxides to alcohols. Derived by reaction of aluminum hydride with the corresponding alcohol in tetrahydrofuran.

**"Alkyd Molding Compounds."**<sup>175</sup> TM for a thermosetting plastic comprised of an unsaturated polyester (usually formulated with a diallyl phthalate cross-linking monomer), inorganic mineral fillers (clay, glass fiber, asbestos, etc.), and other modifiers.

Properties: High dimensional stability, good electrical resistivity, ease of molding at low pressures. Glass-reinforced type has high mechanical strength and impact resistance.

Forms available: Granular, putty (soft), glass-reinforced.

Use: Components of electrical systems, encapsulating compounds, electrical insulation.

See also alkyd resin.

**alkyd resin.** A thermosetting coating polymer, chemically similar to polyester resins, conventionally made by condensation, polymerization of a dihydric or polyhydric alcohol (ethylene glycol or glycerol) and a polybasic acid (phthalic anhydride), usually with a drying oil modifier. The process requires heating at  $230\text{--}250^\circ\text{C}$  for up to 12 hours. A new and quite different method utilizes epoxy addition polymerization in which a mixture of glycidyl esters and organic acid anhydrides are heated with a metallic catalyst at  $100^\circ\text{C}$  or less for only two to four hours. Cost and energy savings and improved application performance are realized by this process.

Use: Alkyd resins are used as vehicles in exterior house paints, marine paints and baking enamels. Molded alkyd resins are used for electrical components, distributor caps, encapsulation and a variety of similar applications.

**alkyl.** A paraffinic hydrocarbon group which may be derived from an alkane by dropping one hydrogen from the formula. Examples are methyl  $\text{CH}_3$ -, ethyl  $\text{C}_2\text{H}_5$ -, propyl  $\text{CH}_3\text{CH}_2\text{CH}_2$ -, isopropyl  $(\text{CH}_3)_2\text{CH}_2$ -. Such groups are often represented in formulas by the letter R and have the generic formula  $\text{C}_n\text{H}_{2n+1}$ .

See also aryl.

**alkylaryl polyethyleneglycol ether.** See iso-octylphenoxypolyoxyethylene ethanol for a typical example of this class of compound.

Use: In surface-active agents.

**alkylaryl sulfonate.** An organic sulfonate of combined aliphatic and aromatic structure, e.g., alkylbenzene sulfonate.